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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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05/23/2001

Kimio Amemiya

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4372

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07/12/2004

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EXAMINER

COLON, GERMAN

ART UNIT

PAPER NUMBER

2879

DATE MAILED: 07/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

an

Office Action Summary	Application No. 09/862,696	Applicant(s) AMEMIYA ET AL.	
	Examiner German Colón	Art Unit 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3,6,13-15,19,21,27,32-39,41,44-47,49,51-60 and 63-71 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19,21,27,32-39,44-47,51,57,59,60,66,67 and 71 is/are allowed.
- 6) ☒ Claim(s) 3,6,13-15,41,49,52-56,58,63-65 and 68-70 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 May 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/10/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 10, 2004 has been entered.

Response to Amendment

2. The Amendment, filed on May 11, 2004, has been entered and acknowledged by the Examiner.

Claim Objections

3. Claim 63 is objected to because of the following informalities:

Line 13 recites the limitation “including transverse walls extending in the row direction *axed* vertical walls extending in the column direction”. For the purpose of examination, the word “*axed*” was understood as “and”.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Examiner's Comments

5. In regards to the rejection of independent claims 52, 53, 65 and 69 below, the Examiner notes that the references disclose a standard structure of a PDP comprising: a front substrate and a back substrate on opposite sides of a discharge space, a plurality of row electrode pairs extending in a row direction and arranged in a column direction on the front substrate to form display lines, a protective dielectric layer provided on a face of the front substrate facing the discharge space, a plurality of column electrodes extending in the column direction and arranged in the row direction on the back substrate to form a unit light emitting area in the discharge space at each intersection with the row electrode pair, and a phosphor layer on a face of the back substrate facing the discharge space.

6. Claims 3, 52, 53, 65 and 69 are rejected under 35 U.S.C. 102(a) as being anticipated by Uchitai (JP 2000-133148).

Regarding claim 52, Uchitai discloses a PDP (see Examiner's Comments in view of Fig. 1) comprising a priming particle generating member 13 made up of an UV light emissive phosphor extending in the row direction at each site opposite the row electrode pairs, wherein said priming particle generating member is formed separate from the (visible light-emitting) phosphor layer.

Regarding claim 53, Uchitai discloses a PDP (see Examiner's Comments in view of Fig. 1) comprising a priming particle generating member 13 made up of an UV light emissive

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phosphor extending in the column direction at each site opposite the row electrode pairs, wherein said priming particle generating member is formed separate from the (visible light-emitting) phosphor layer.

Regarding claim 65, Uchitoi discloses a PDP (see Examiner's Comments in view of Fig.

1) comprising:

a stripe patterned partition wall **8** disposed between the front substrate and the back substrate extending in the column direction; and

a priming particle generating member **13** made up of an UV light emissive phosphor, wherein said priming particle generating member is provided at a site opposing main bodies of row electrodes,

wherein said priming particle generating member is formed separate from the (visible light-emitting) phosphor layer.

Regarding claim 69, Uchitoi discloses a PDP (see Examiner's Comments in view of Fig.

1) comprising:

a partition wall **8** disposed between the front substrate and the back substrate having a phosphor layer **9** on a front face of the partition wall opposing the front substrate and facing the discharge; and

a priming particle generating member **13** made up of an UV light emissive phosphor extending in the column and/or row direction at each site opposite the row electrode pairs, wherein the priming particle generating member has persistence characteristics allowing emission for 0.1 ms or more,

wherein said priming particle generating member is formed separate from the (visible light-emitting) phosphor layer.

The Examiner notes that Uchitai does not explicitly state that the persistence of the priming particle generating member comprising a UV light emissive phosphor is at least 0.1 ms. However, it discloses the phosphor being a magnesium aluminate. Said phosphor is known to have a persistence greater than the claimed value; thus, the structure disclosed by Uchitai inherently allows radiation for 0.1 ms or more. See US 6,423,248 to Rao, as background information regarding the persistence characteristics of alkaline earth aluminates.

Regarding claim 3, Uchitai discloses the UV light emissive phosphor having persistence characteristics allowing emission for 0.1 msec or more.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Examiner's Comments

8. In regards to the rejection of independent claims 53-56, 58, 63, 64, 68 and 70 below, the Examiner notes that the references disclose a standard structure of a PDP comprising: a front substrate and a back substrate on opposite sides of a discharge space, a plurality of row electrode pairs extending in a row direction and arranged in a column direction on the front substrate to form display lines, a protective dielectric layer provided on a face of the front substrate facing

the discharge space, a plurality of column electrodes extending in the column direction and arranged in the row direction on the back substrate to form a unit light emitting area in the discharge space at each intersection with the row electrode pair, and a phosphor layer on a face of the back substrate facing the discharge space.

9. Claims 6 and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nanto et al. (US 5,952,782) in view of Uchitai (JP 2000-133148).

Referring to claim 53, Nanto discloses the claimed invention (see Examiner's Comments in view of Fig. 1B and Col. 5, lines 38-60) except for the limitation of "comprising a priming particle generating member made up of an UV light emissive phosphor".

However, in the same field of endeavor, Uchitai discloses a PDP comprising a priming particle generating member made up of an UV light emissive phosphor with the purpose of improving the light emitting efficiency without shortening the light emitting lifetime of the device. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the PDP of Nanto with the priming particle generating member disclosed by Uchitai in order to provide a PDP with higher luminous efficiency without shortening the light emitting lifetime of the device.

Nanto-Uchitai discloses the UV light emissive phosphor extending in the column direction at each site opposite the row electrode pairs (see Fig. 1B of '782 in view of Fig. 1 of Uchitai), wherein said UV light emissive phosphor is formed separate from the (visible light-emitting) phosphor layer.

Referring to claim 6, Nanto-Uchitai discloses a light absorption layer provided at each position opposing a non-lighting area (see Figs. 5, 7 and 8 of '782).

10. Claims 54, 55, 63 and 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Asano et al. (US 6,008,582) in view of Uchitai (JP 2000-133148).

Referring to claim 54, Asano discloses a PDP (see Examiner's Comments in view of Fig. 1 and Col. 4, lines 10-41) comprising a partition wall disposed between the front substrate and the back substrate 3 including transverse walls 54 extending in the row direction and vertical walls 1 extending in the column direction. Asano is silent regarding the phosphor layer of said PDP.

However, in the same field of endeavor, Uchitai discloses a PDP comprising a priming particle generating member made up of an UV light emissive phosphor with the purpose of improving the light emitting efficiency without shortening the light emitting lifetime of the device. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the PDP of Asano with the priming particle generating member disclosed by Uchitai in order to provide a PDP with higher luminous efficiency without shortening the light emitting lifetime of the device.

Asano-Uchitai discloses a priming particle generating member made up on an UV light emissive phosphor provided between the front substrate and the transverse wall of the partition wall (see Figs. 1, 4 and 5 of '582 in view of Fig. 1 of Uchitai), wherein said UV light emissive phosphor is formed separate from the (visible light-emitting) phosphor layer.

Referring to claim 55 and 64, claim 55 and 64 are rejected over the reasons stated in the rejection of claim 54 above. Asano-Uchitai discloses a priming particle generating member made up on an UV light emissive phosphor provided between the front substrate and the vertical wall of the partition wall (see Figs. 1, 4 and 5 of '582 in view of Fig. 1 of Uchitai).

In regards to claim 63, claim 63 is rejected over the reasons stated in the rejection of claim 54 above. Asano-Uchitai discloses a priming particle generating member made up on an UV light emissive phosphor provided between the front substrate and the transverse wall of the partition wall (see Figs. 1, 4 and 5 of '582 in view of Fig. 1 of Uchitai), wherein said UV light emissive phosphor is formed separate from the (visible light-emitting) phosphor layer.

11. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Amemiya et al. (US 5,742,122) in view of Uchitai (JP 2000-133148).

Amemiya discloses a PDP (see Examiner's Comments in view of Fig. 2 and Col. 4, lines 50-67 and Col. 5, lines 18-20) comprising a stripe patterned partition wall disposed between the front substrate and the back substrate and extending in the column direction, wherein a row electrode of each of the row electrode pair includes a main body **Sa** extending in the row direction and a protruding portion **S** protruding from the main body in the column direction. Amemiya is silent regarding the phosphor layer of said PDP.

However, in the same field of endeavor, Uchitai discloses a PDP comprising a priming particle generating member made up of an UV light emissive phosphor with the purpose of improving the light emitting efficiency without shortening the light emitting lifetime of the device. Thus, it would have been obvious to one of ordinary skill in the art at the time the

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invention was made to provide the PDP of Amemiya with the priming particle generating member disclosed by Uchitai in order to provide a PDP with higher luminous efficiency without shortening the light emitting lifetime of the device.

Amemiya-Uchitai discloses a priming particle generating member made up on an UV light emissive phosphor provided between the front substrate and the back substrate in positions opposing the main bodies of the row electrodes, wherein said UV light emissive phosphor is formed separate from the (visible light-emitting) phosphor layer.

12. Claims 13-15, 41, 49, 58, and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nanto et al. (US 5,952,782) in view of Van Slooten (US 6,229,582).

In regards to claim 58, Nanto discloses a PDP (see Examiner's Comments in view of Fig. 1B and Col. 5, lines 38-60) comprising a dielectric layer **24** overlaying column electrodes **A** between the back substrate and the phosphor layer **28**. Nanto fails to disclose a priming particle generating member provided at a site facing the discharge area.

However, in the same field of endeavor, Van Slooten discloses a PDP comprising a priming particle generating member with the purpose of reducing the number of electrons and ions of the plasma that are lost at the walls of the discharge area and lowering the sustain current needed to maintain the plasma, thus reducing the energy consumption of the device (see Col. 2, lines 1-12). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the priming particle generating member disclosed by Van Slooten in the PDP of Nanto, in order to reduce the number of electrons and ions of the plasma

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that are lost at the walls of the discharge area and lowering the sustain current needed to maintain the plasma, thus reducing the energy consumption of the device.

Nanto-Van Slooten discloses a priming particle generating member made up of a secondary electron emissive layer formed in combination with the dielectric layer (see Col. 1, lines 58-60 of '582), wherein said priming particle generating member is formed separate from the phosphor layer.

Referring to claim 13, Nanto-Van Slooten discloses a partition wall **29** provided between the front substrate and the back substrate, wherein said secondary electron emissive layer is provided on a side wall-face of the partition wall (see Fig. 1 of '782 in view of Col. 1, lines 58-60 of '582).

Referring to claim 14, claim 14 is rejected over the reasons stated in the rejection of claim 13.

Referring to claim 15, Nanto-Van Slooten discloses said secondary electron emissive layer being placed between the back substrate and the phosphor layer (see Fig. 1 of '782 in view of Col. 1, lines 58-60 of '582).

Regarding claim 68, claim 68 is rejected over the reasons stated in the rejection of claim 58. Nanto-Van Slooten discloses said priming member provided in contact with the discharge space between adjacent unit light emitting areas and an additional portion provided at a portion of the dielectric layer (see Fig. 1 of '782 in view of Col. 1, lines 58-60 and Col. 5, lines 8-14 of '582).

Referring to claim 41, Nanto-Van Slooten discloses a light absorbing layer provided at a portion of the dielectric layer (see Figs. 5, 7 and 8 of '782).

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Referring to claim 49, Nanto-Van Slooten discloses the priming particle generating member including a material having a work function of 4.2 eV or less (see Col. 2, lines 57-63 of '582).

13. Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kurai (US 6,057,643) in view of Uchitai (JP 2000-133148).

Kurai discloses a PDP (see Examiner's Comments in view of Fig. 1 and Col. 2, lines 39-67) comprising a discharge gas including a mixed inert gas containing about 10% of a xenon gas (see Col. 5, line13). Kurai fails to disclose a priming particle generating member provided at a site facing the discharge area.

However, in the same field of endeavor, Uchitai discloses a PDP comprising a priming particle generating member made up of an UV light emissive phosphor with the purpose of improving the light emitting efficiency without shortening the light emitting lifetime of the device. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the PDP of Kurai with the priming particle generating member disclosed by Uchitai in order to provide a PDP with higher luminous efficiency without shortening the light emitting lifetime of the device.

The Examiner notes that Uchitai does not explicitly state that the persistence of the priming particle generating member comprising a UV light emissive phosphor is at least 0.1 ms. However, it discloses the phosphor being a magnesium aluminate. Said phosphor is known to have a persistence greater than the claimed value; thus, the structure disclosed by Uchitai

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inherently allows radiation for 0.1 ms or more. See US 6,423,248 to Rao, as background information regarding the persistence characteristics of alkaline earth aluminates.

Allowable Subject Matter

14. Claims 19, 21, 27, 32-39, 44-47, 51, 57, 59, 60, 66, 67 and 71 are allowed.
15. The following is a statement of reasons for the indication of allowable subject matter:
The claims are allowable for the reasons given in the Office Action mailed 6/18/03.

Response to Arguments

16. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to German Colón whose telephone number is 571-272-2451. The examiner can normally be reached on Monday thru Thursday, from 8:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Karabi Guharay